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SHOULD PATIENTS WITH END SYSTOLIC MR BE GRADED ON THE BASIS OF EFFECTIVE REGURGITANT ORIFICE?

i2 Poster Contributions
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Background: Quantitative grading of mitral regurgitation (MR) is a powerful predictor of clinical outcome, based on large effective regurgitant orifice (ERO≥40mm2). However, degenerative MR is often limited to end-systole and whether, in patients with such end-systolic MR, ERO remains predictive of outcome with similar thresholds, is unknown.

Methods: To determine whether end-systolic MR causes similar left ventricular(LV), atrial(LA) and outcome consequences as holosystolic MR, we compared 111 patients with end-systolic degenerative MR to 90 patients with holosystolic MR, matched for age, gender and ejection fraction and ERO measured by proximal-isovelocity-surface-area method. Age (64.3±15.8 years), sex (48% men), ejection fraction (64±7%) and ERO (26±15 mm2) were identical in the two groups.

Results: Patients with end-systolic vs. holosystolic MR had lower regurgitant volume (24.8±13.4 vs. 48.6±25.6cc; p<0.0001), right ventricular systolic pressure (28.9±7.0 vs. 35.9±10.0mmHg; p<0.0001), LV end-diastolic dimension (51.5±6.5 vs. 53.9±6.6mm; p=0.02) and LA volume index (41.1±12.3 vs. 54.3±20.5cc; p<0.0001). Under medical management five-year survival did not reach significance (94.6±5.5percent, 85.6±4.2; p=0.2) but heart failure (6±3 vs. 19±5%; p=0.002), new atrial fibrillation (7±2.5 vs. 22±5%; p=0.009) or cardiac events (14±5 vs. 27±6%; p=0.03) were less frequent with end-systolic MR. Cardiac surgery was ultimately performed in 20 percent vs. 37 percent (p=0.008) of patients.

Conclusions: Degenerative MR limited to end-systole has, compared to holosystolic MR of similar age, sex, ejection fraction and ERO, strikingly different consequences. LV and LA size are smaller, morbid outcomes of MR and the need for mitral surgery are less in holosystolic MR. Thus, MR timing is of critical importance in determining the interpretation of ERO measured by the PISA method in patients with degenerative MR. Therefore, clinical management and surgical referral should carefully take into account for timing and consequences of MR.